

|  |  |  |  |   |  |                                 |  |
|--|--|--|--|---|--|---------------------------------|--|
| FORM PTO-1449<br><br><b>U.S. DEPARTMENT OF COMMERCE</b><br><b>PATENT AND TRADEMARK OFFICE</b><br><br><b>INFORMATION DISCLOSURE</b><br><b>STATEMENT BY APPLICANT</b><br><br>(Use several sheets if necessary) |  |  |  | <b>ATTY. DOCKET NO.</b><br>I-2-0173.1US |  | <b>SERIAL NO.</b><br>10/052,943 |  |
|  |  |  |  | <b>APPLICANT</b><br>De et al.           |  |                                 |  |
|  |  |  |  | <b>FILING DATE</b><br>November 7, 2001  |  | <b>GROUP</b><br>2661            |  |

  

| U.S. PATENT DOCUMENTS |   |                 |         |                       |       |          |                            |
|-----------------------|---|-----------------|---------|-----------------------|-------|----------|----------------------------|
| EXAMINER INITIAL      | * | DOCUMENT NUMBER | DATE    | NAME                  | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
| KW                    | * | 5,377,225       | 12/1994 | Davis                 |       |          |                            |
| KW                    | * | 5,337,226       | 12/1994 | <del>Davis</del> Wang |       |          |                            |
| KW                    | * | 5,648,983       | 07/1997 | Kostic et al.         |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |
|                       |   |                 |         |                       |       |          |                            |

  

| FOREIGN PATENT DOCUMENTS |  |                 |      |         |       |          |             |    |
|--------------------------|--|-----------------|------|---------|-------|----------|-------------|----|
|                          |  | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION |    |
|                          |  |                 |      |         |       |          | YES         | NO |
|                          |  |                 |      |         |       |          |             |    |
|                          |  |                 |      |         |       |          |             |    |
|                          |  |                 |      |         |       |          |             |    |

  

| OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) |  |
|--|--|
| KW   | Ramjee Prasad, Werner Mohr and Walter Konhauser editors, <i>Third Generation Mobile Communication Systems</i> , Artech House, Boston, 2000.  |
| KW   | Anja Klein, Ghassan Kanas Kaleh and Paul Walter Baier, "Zero Forcing and Minimum Mean-Square Error Equalization for Multiuser Detection in Code-Division Multiple-Access Channels", <i>IEEE Trans. on Vehicular Technology</i> , Vol.45, No. 2, pp. 276-287, May 1996. |
| KW   | Naja Klein, "Data Detection Algorithms Specially Designed for the Downlink of CDMA Mobile Radio Systems" <i>IEEE 47th Vehicular Technology Conference</i> , pp. 203-207, May 1997.   |



|   |  |  |                                 |
|---|--|--|---------------------------------|
| <b>FORM PTO-1449</b><br><br><b>U.S. DEPARTMENT OF COMMERCE</b><br><b>PATENT AND TRADEMARK OFFICE</b><br><br><b>INFORMATION DISCLOSURE</b><br><b>STATEMENT BY APPLICANT</b><br><br>(Use several sheets if necessary) |  | <b>ATTY. DOCKET NO.</b><br>I-2-0173.1US  | <b>SERIAL NO.</b><br>10/052,943 |
|   |  | <b>APPLICANT</b><br>De et al.  |                                 |
|   |  | <b>FILING DATE</b><br>November 7, 2001   | <b>GROUP</b><br>2861            |
| <b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>   |  |  |                                 |
|   |  | H.R. Karimi and N.W. Anderson, "A Novel and Efficient Solution to Block-Based Joint-Detection using Approximate Cholesky Factorization", <i>Personal, Indoor and Mobile Communications PIMRC' 98</i> , Conference Proceedings, Vol. 3, pp. 1340-1345, Sept. 1998, Boston, MA.                |                                 |
|   |  | ETSI STC SMG2 Layer 1 Expert Group, "Low Cost MMSE-BLE-SD Algorithm for UTRA TDD Mode Downlink", Tdoc SMG2 UMTS L1, Helsinki, Finland, Sept. 1998.   |                                 |
|   |  | 3G TS 25.102 V3.4.0, 2000-10, "UTRA (TDD) Radio Transmission and Reception", 3rd Generation Partnership Project, Technical Specification Group RAN WG4, Annex B., pp. 37.  |                                 |
|   |  | Lang Tong; Guanghan xu; Kailath T: "Blind identification and equalization based on second -order statistics: a time domain approach", IEEE Trans. Inf. Theory (USA), IEEE Transactions on Information Theory, March 1994, USA, ISSN 0018-9448, VOL-40, NR 2, pages 340-349                   |                                 |
|   |  | Benvenuto N. et al. "Joint Detection With Low Computational Complexity For Hybrid TD-CDMA Systems" VTC 1999-Fall. IEEE VTS 50th. Vehicular Technology Conference. Gateway to the 21st Century Communications Village. Amsterdam, Sept. 19-22, 1999, IEEE Vehicular Technology Conference, NY |                                 |
|   |  | Vandaele P. et al. "Recursive Total Least Squares Algorithm for Single-User Blind Channel Equalisation: IEE Proceedings: Vision, Image and Signal Processing, Institution of Electrical Engineers, FB, Vol 147, No. 3, 23 June 2000  |                                 |
|   |  | Yang et al., "Fast Joint Detection with Cyclic Reduction Exploiting Displacement Structures", 2000 IEEE International Conference on Acoustics, Speech and Signal Processing, Istanbul, Turkey, June 2000   |                                 |
|   |  | Proakis et al., "Digital Signal Processing", Macmillan Publishing Company, New York, NY, 1992, p. 835, para. 11.3.1, p. 890, para. 12.3.2  |                                 |
|   |  | Vollmer et al., "Joint-Detection Using Fast Fourier Transforms in TD-CDMA Based Mobile Radio Systems", International Annual Conference of ICT, 1999, pp. 1-7, p. 1, para. 1, p. 2, para. II, p. 3, para. III, p. 4, para. IV.  |                                 |
|   |  | Pigeonnat, "Alternative Solutions for Joint Detection in TD/CDMA Multiple Access Scheme for UMTS", IEEE Signal Processing Workshop on Signal Processing Advances In Wireless Communications, May 1999, pp. 329-332, p. 329, para. 2.   |                                 |
|   |  |  |                                 |

|                 |                        |
|-----------------|------------------------|
| <b>EXAMINER</b> | <b>DATE CONSIDERED</b> |
|-----------------|------------------------|

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



**SERIAL NO.**  
**10/052.943**

**APPLICANT**  
De et al.

**FILING DATE**  
**11/07/2001**

GROUP  
~~2001~~ 2661

**(Use several sheets if necessary)**

[illegible]

|  |  | DOCUMENT NUMBER |    |  |  |  |  |  | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION |  |  |
|--|--|-----------------|----|--|--|--|--|--|------|---------|-------|----------|-------------|--|--|
|  |  | YES             | NO |  |  |  |  |  |      |         |       |          |             |  |  |
|  |  |                 |    |  |  |  |  |  |      |         |       |          |             |  |  |
|  |  |                 |    |  |  |  |  |  |      |         |       |          |             |  |  |

|    |  |
|----|--|
| AG | Benvenuto N. et al. "Joint Detection With Low Computational Complexity For Hybrid TD-CDMA Systems" VTC 1999-Fall. IEEE VTS 50th. Vehicular Technology Conference. Gateway to the 21st Century Communications Village. Amsterdam, Sept. 19-22, 1999, IEEE Vehicular Technology Conference, NY |
| AH | Vandaele P. et al. "Recursive Total Least Squares Algorithm for Single-User Blind Channel Equalisation: IEE Proceedings: Vision, Image and Signal Processing, Institution of Electrical Engineers, FB, Vol 147, No. 3, 23 June 2000  |

DATE CONSIDERED

**EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|                                     |                            |
|-------------------------------------|----------------------------|
| EXAMINER<br><i>Robert W. Wilson</i> | DATE CONSIDERED<br>6/12/86 |
|-------------------------------------|----------------------------|

**EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.